

Name:

Date:

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PART A In the space on the left, write the letter of the term or phrase which **best** completes the statement or answers the question (1 mark each).

- ____ 1. Which of the following is a vector quantity?
a. Time
b. Distance
c. Displacement
d. Speed
- ____ 2. An object at rest has a ____ slope on a displacement-time graph.
a. Positive
b. Negative
c. Vertical
d. Horizontal
- ____ 3. Which symbol is used to represent the difference between final and initial time?
a. α
b. Δ
c. β
d. \leftrightarrow
- ____ 4. An object with a displacement of 3m[E] during a 6 second interval has an average velocity of ...
a. 2 m/s
b. 12 m/s
c. 9 m/s
d. 0.5 m/s
- ____ 5. When plotting a displacement-time graph, which data would you plot on the y-axis?
a. Distance
b. Time
c. Displacement
d. Velocity
- ____ 6. The slope of a distance-time graph represents ...
a. Speed
b. Displacement
c. Velocity
d. Time interval

- ___ 7. We can find instantaneous speed by drawing a ___ line on a distance-time graph.
a. Curved
b. Vertical
c. Tangent
d. Horizontal displacement
- ___ 8. Two lines (representing Runners A & B) are on a position-time graph. The steepest line ...
a. Is steepest just because that's the line you plotted first on the graph.
b. Represents the runner with the highest velocity.
c. Means both runners have the same velocity.
d. Represents the runner with the slowest velocity.
- ___ 9. Which of the following is a scalar quantity?
a. Speed
b. Displacement
c. Velocity
d. Average velocity
- ___ 10. If you travel 10 km [E] from home then return, your displacement for the trip is ...
a. 10km
b. 20 km
c. 0 km
d. There isn't enough information provided to determine displacement.

PART B In the space provided mark each of the following as true or false. (1 mark each)

- ___ 1. Speed is a scalar quantity.
- ___ 2. To calculate a time interval, subtract the final time from the initial time.
- ___ 3. If West is designated positive, East is designated negative.
- ___ 4. In the physical world around us, there is no such thing as true uniform motion.
- ___ 5. A displacement-time graph with a zero slope has a straight vertical line.
- ___ 6. Slope is calculated by find the change in the x-axis \div the change in the y-axis.
- ___ 7. Velocity is a vector quantity.
- ___ 8. Scalars and vectors both describe magnitude.
- ___ 9. Time is graphed on the y-axis on a displacement-time graph.
- ___ 10. A straight line on a displacement-time graph represents uniform motion.

PART C In the space provided, match each term or phrase with the best definition. (1 mark each)

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| ___ 1. Position | A. A quantity that describes magnitude and direction. |
| ___ 2. Scalar | B. A scalar that describes the length of a path between two points. |
| ___ 3. Average velocity | C. The difference between the initial time and the final time. |
| ___ 4. Time interval | D. A quantity that describes magnitude but does not include direction. |
| ___ 5. Vector | E. Has a horizontal slope on a displacement-time graph. |
| ___ 6. Displacement | F. Describes objects moving equal displacements in equal time intervals. |
| ___ 7. Distance | G. A vector that describes a specific point relative to a reference point. |
| ___ 8. Instantaneous speed | H. The speed of an object at a particular moment in time. |
| ___ 9. Uniform motion | I. The rate of change in position for a specific time interval. |
| ___ 10. Zero velocity | J. The straight-line distance and direction from one point to another. |

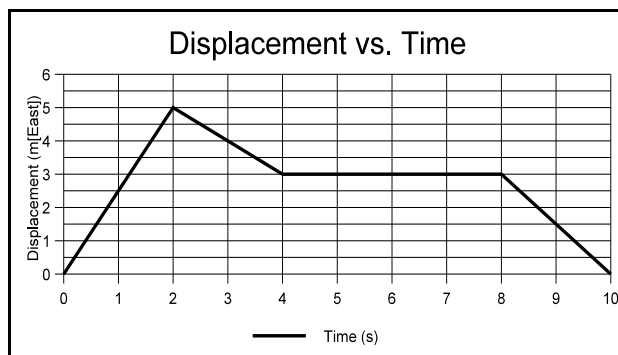
PART D Each of the following questions requires a calculation.

1. Julie counts 8 pulses in her wrist in 12 seconds. Calculate the period and frequency of her heartbeat. (2 marks)

2. An object moves 36 m [E] in 8 seconds. Calculate the velocity, and include the direction. (1 mark)

3. An object moves 62 km [W] in 4 hours. Calculate the velocity, and include the direction. (1 mark)

PART E Use this displacement-time graph to answer questions 1–12.



For each time interval in questions 1–4, describe the motion of the object. Be sure to include mention of the displacement, direction, type of motion, and time interval where applicable. (1 mark each)

1. 0s–2s
2. 2s–4s
3. 4s–8s
4. 8s–10s

For each of the following time intervals in questions 5–8, calculate the displacement, being sure to include the direction. (1 mark each)

5. 0s–2s
6. 2s–4s
7. 4s–8s
8. 8s–10s

For each of the time intervals in questions 9–12, calculate the velocity of each object. Remember to describe the velocity as either east or west where applicable. (1 mark each)

9. 0s–2s

10. 2s–4s

11. 4s–8s

12. 8s–10s

Calculate the distance of the following objects in questions 13–14. (1 mark each)

13. An object has a speed of 12 m/s for 6 seconds.

14. An object has a speed of 72 km/h for 2.5 hours.

Calculate the time of the following scenarios in questions 15–16. (1 mark each)

15. An object travels at 7 m/s. How long would it take the object to travel 42 m?

16. An object travels at 4 km/h. How long would it take the object to travel 48km?